

### Notes on our Hepaticæ. III.<sup>1</sup>

#### The distribution of the North American Marchantiaceæ.

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The genus hitherto known as *Fimbriaria*, one of the largest of the genera of marchantiaceous hepatics, has to suffer now for the failure in the past to recognize the rights of priority; and strangely enough there seems to be considerable difference of opinion still as to the proper name of the genus. The case is as follows: In 1810 Palisot de Beauvais established the genus *Asterella* with two species, *A. tenella* (*Marchantia tenella* L.) and *A. hemisphaerica* (*Marchantia hemisphaerica* L.). These are now recognized as belonging to two diverse genera. In 1818 Raddi established the genus *Rebouillia* for the latter species and in 1820 Nees established the genus *Fimbriaria* (by error *Fimbraria*) for the group which now includes the former, though that species was not included in *Fimbriaria* until 1838<sup>2</sup>. In 1829 Corda established the genus *Hypenanthron* which is the equivalent of *Fimbriaria*. The genus *Rhacotheca* Bischoff (1844), and the genus *Octoskepos* Griffith (1849), were founded on species that will also be included in the same genus.

The case as we see it now is perfectly clear, and yet Lindberg (1868) complicated the matter by adopting the genus *Asterella* for *Rebouillia*, in which he was followed by Dumortier and many others, including recent American writers. Trevisan was the first to clear up the matter, but in his later work he fell from the estate he had reached and again wrote *Asterella* for *Rebouillia*. In his earlier position he was followed by Lindberg (in his later writings commencing with 1879), by Massalongo and by many others. Trevisan in his later work (1877) was the first to adopt *Hypenanthron* for *Fimbriaria* and in this he has been followed by Kuntze and Schiffner.

It is clear that the genus *Asterella* in 1818, after Raddi had

<sup>1</sup>Preceding numbers of this series are in this journal (1) 14: 191-198. 1888.—(2) 19: 273-278. 1894.

<sup>2</sup>*Marchantia tenella* L. had the further misfortune to be for a long time confused with one or more European species.



established *Rebouillia*, contained what was left in the genus after the one species was taken from it. That Nees established *Fimbriaria* without recognizing the fact that one of its most typical species already stood as the sole representative of a genus does not alter the case. Since *Fimbriaria* Nees cannot possibly stand, as there is an earlier *Fimbriaria* Stackh. (1809) among the algæ, there is no possible excuse for using *Hypenanthron* when there is already an appropriate generic name nineteen years older. There is even much less excuse for the adoption of *Asterella* for *Rebouillia* since the latter name was the first to be separated from the former. The fact that *Asterella* has been used for another genus will make a little confusion for a time, but that would not warrant the cancellation of such an appropriate name as has been done by Schiffner in *Die natürlichen Pflanzenfamilien* (Engler-Prantl).

The American species under their new names are as follows:—

1. **ASTERELLA TENELLA** Pal. de Beauv. Encyc. Meth., Bot. 3: 110. 1810.

*Marchantia tenella* L. Sp. Pl. 1137. 1753.

*Fimbriaria nigripes* Bisch. MS. in Lehm. Pug. Pl. 6: 19. 1834.

*Fimbriaria tenella* Nees, Europ. Leberm. 4: 271. 1838.

*Fimbriaria mollis* Tayl. Lond. Jour. Bot. 5: 411. 1846.

This species is very widely distributed throughout Eastern America. Specimens have been received as follows: Massachusetts, *Cummings*, *Crocker*, *Underwood*; New York, *Fischer*; Ontario, *Macoun*; Ohio, *Werner*, *Herrick*; Indiana, *Underwood*; Illinois, *Seymour*; Pennsylvania, (hb. Taylor, type of *F. mollis*), Delaware, *Commons*; Virginia, (ex hb. James); South Carolina, *DuBois*; Georgia, *Underwood*; Tennessee, *Bain*; Missouri, *Demetrio*. Sterile forms collected in Nebraska, *Webber*, and in Minnesota, *Holzinger*, have been hitherto referred to this species but these need the confirmation of mature specimens as they differ in being dark purple beneath, and the Nebraska specimens at least possess whitish scales.

2. **Asterella Californica** (Hampe), nom. nov.

*Fimbriaria Californica* Hampe MS. n. n. in Aust. Hep. Bor.-Am. 135; Undw. Bull. Ill. State Lab. Nat. Hist. 2: 41. 1884.

This species is found throughout California from San Francisco southward to San Diego and Guadeloupe Island, having been sent by various collectors. Sterile specimens have also



been sent from British Columbia by Macoun, and it will be found doubtless throughout the entire Pacific region.

3. **Asterella Bolanderi** (Aust.), nom. nov.

*Fimbriaria Bolanderi* Aust. Proc. Phila. Acad. 1869: 230. 1869.

California: San Rafael, *Bolander*; Auburn, *Bolander*; Mill Valley, *Howe*.

The specimens collected by Coville on the Death Valley Expedition and referred by me to this species are rather *A. gracilis*.

4. **Asterella violacea** (Aust.), nom. nov.

*Fimbriaria violacea* Aust. Bull. Torr. Bot. Club 3: 17. 1872.

Central California, *Bolander*, *Coulter*, *Howe*.

5. **Asterella nudata** (M. A. Howe), nom. nov.

*Fimbriaria nudata* M. A. Howe, Erythea 1: 112. 1893.

Central and Southern California: Mill Valley, Marin co., *Howe*; Jackson, Amador co., *Howe*; Pasadena, Los Angeles co., *McClatchie*. A very well marked species.

6. **ASTERELLA FRAGRANS** (Nees) Trevis. Rend. R. Ist. Lomb. Sc. II. 7: 10. 1874.

*Marchantia fragrans* Schleich. n. n. in Exsicc. cent. III. 64.

*Fimbriaria fragrans* Nees, Hor. Phys. Berol. 45. 1820.

New Mexico, *Fendler*; Idaho, *Leiberg*; Telegraph Creek, near Alaska, *Dawson*. Remarkable for its profuse white scales that extend far beyond the margin.

7. **Asterella gracilis** (Web. f.), nom. nov.

*Marchantia pilosa* Wahl. Fl. Lapp. 339. 1812; not *M. pilosa* Horn. Fl. Dan. 8: pl. 1426. 1810.

*Marchantia gracilis* Web. f. Hist. Musc. Hepat. Prodr. 105. 1815.

*Fimbriaria gracilis* Lindb. Not. pro Fauna et Flora Fenn. 10: 282. 1868.

*Fimbriaria pilosa* Tayl. Trans. Linn. Soc. 17: 386. 1837.

*Asterella pilosa* Trevis. Rend. R. Ist. Lomb. Sc. II. 7: 10. 1874.

The synonymy of this species presents a complicated tangle, and the species has had the misfortune to be over much named. Limpricht asserts that *Marchantia Ludwigii* Schwaegr. Hist. Musc. Hepat. Prodr. 33. 1814 is identical with this species, as had been suggested before by Lindberg. If this proves true, then the name of the species will be *Asterella Ludwigii* (Schwaegr.). Until this can be determined the name will have to be as above, since the specific name *pilosa* is untenable as a homonym.

British Columbia, *Macoun*; Vancouver Island, *Macoun*;



Washington, *Brandeggee*; Tulare co., California, *Coville*. The specimens distributed as *Fimbriaria tenella* in Canadian Hepaticæ no. 73 are of this species, at least in the sets in my herbarium and in the herbarium of Columbia College.

8. ***Asterella echinella*** (Gottsche), nom. nov.

*Fimbriaria echinella* Gottsche Mex. Leverm. 271. 1863.

Orizaba, Mexico, *Müller*; Texas, *C. Wright*, 1849. Clearly marked by the prominent papillæ on the upper surface of the ♀ receptacle.

This includes all the species which I have seen from the limits of our flora.

In Austin's Hep. Bor.-Am. 136c, the habitat of the species included under that number (*Fimbriaria elegans*) is given as "Texas and Cuba, *Wright*." The specimens in my herbarium and those in the Gray herbarium are both accompanied by fragments of a *Selaginella* which to my knowledge does not occur in Texas. It is extremely probable that the specimens were collected in Cuba by Charles Wright, and that the reference to Texas was based on the specimens of the above named species which are in the Sullivant collection labeled "*Fimbriaria elegans*." Now here we have a double error, for neither Wright's Texan specimens nor those distributed in the Hep. Bor.-Am. belong to the species to which they have been referred. The former are clearly *A. echinella*, and the latter are described later in this paper. This double error and the lack until recently of suitable material for comparison has made it impossible to co-ordinate our species from Mexico and the southwest. It is hoped that the present paper will assist in straightening out the tangle.

The genuine *Asterella elegans* has not to my knowledge been found within the limits of the United States but is to be looked for in the Sonoran region from western Texas to southern California as it is found on both sides of the continent at a little lower latitude. We append a description that it may be recognized if found. Other Mexican and West Indian species follow.

9. **ASTERELLA ELEGANS** (Spreng.) Trevis. Rend. R. Ist. Lomb. Sc. II. 7: 10. 1874.

*Fimbriaria elegans* Spreng. Syst. Veg. 4: 235. 1828.

Gametophyte 0.5–1.5<sup>cm</sup> long, 1–2<sup>mm</sup> wide, thalloid, dark green above with a wide purplish crispy margin, dark purple beneath and much thickened at the midrib; ♀ branch 1–1.5<sup>cm</sup>



high, purple, often paler above, pilose especially at the apex; receptacle convex with 2-4 involucre; inner involucre white or tinged with pink, 8-12-cleft, the divisions coherent at the apices. Sporophyte dark, sessile; spores dark purple or nearly black, with a reddish border, reticulate when immature, opaque at maturity,  $100-135\mu$  in diameter; elaters dark, almost opaque, slender, 2-3 times as long as the diameter of the spores, bispiral.

On the earth among mosses, Lower California, *Brandege*, Orizaba, *Müller*, 1853. To this species I would also refer a specimen in my herbarium from San Luis Potosi, Mexico, *Schaffner*, though it lacks the purple border; also immature specimens collected at Cordoba, *Farlow*. This species also occurs in South America and Europe.

A form occurs in Cuba which has been referred to the preceding species but evidently deserves specific rank. It has already a specific name but may be more fully characterized as follows:

10. **Asterella Cubensis** (Lehm.), nom. nov.

*Fimbriaria Cubanensis* Lehm. in Ramon de la Sagra, Hist. fis. pol. y nat. de la Isla de Cuba 9: 489. pl. 19. fig. 3. 1845.

*F. elegans*, var. *Cubensis* G. L. N. Syn. Hep. 566. 1846.

Gametophyte 1.5-2.5<sup>cm</sup> long, 1.5-2<sup>mm</sup> wide, pale green, thalloid, simple or rarely once forked, plane above or rarely grooved near the base, the margins occasionally purple; greenish or sometimes purplish beneath with a prominent midrib and copious root hairs; ♀ branch 1<sup>cm</sup> or more high, slender, purple, slightly hairy; receptacle globose-conic, tuberculate, with one or rarely two involucre beneath interspersed with a few slender hairs; inner involucre brownish white, 8-9 cleft, the divisions coherent at their apices. Sporophyte dark colored, sessile; spores brown or purplish brown, opaque, with a paler brown margin,  $95-105\mu$  in diameter; elaters dark brown, about twice as long as the diameter of the spores, bispiral.

On hillsides, growing among mosses, Matanzas, Cuba, *Underwood*, Feb. 1891. To this species I also refer the immature specimens distributed in Hepaticæ Cubenses *Wrightianæ* as *Fimbriaria elegans*.

11. **Asterella Palmeri** (Aust.), nom. nov.

*Fimbriaria Palmeri* Aust. Bull. Torr. Bot. Club 6: 47. 1875.

Guadeloupe Island, off Lower California, *Palmer*. This ap-



pears to be a good species though all the specimens I have seen have immature spores.

12. *Asterella Pringlei*, n. sp.

Gametophyte 1–1.5<sup>cm</sup> long, 2–4<sup>mm</sup> wide, bright green, fleshy, thalloid, closely adherent to the soil, depressed along the center, the margins thin, areolate-veiny, irregularly crenate-undulate, greenish below with a few slender whitish lanceolate scales, and numerous root hairs along the midrib; ♀ branch slender, 1–1.5<sup>cm</sup> high, brownish, lighter above, naked throughout; receptacle subglobose, much wrinkled when dry, with one or two somewhat divergent involucre; inner involucre white, about 12-cleft, the divisions cohering at their apices. Sporophyte sessile, with large brown or almost black spores that are tetrahedral, 118–135 $\mu$  in diameter, narrowly winged and covered with narrow reticulations; elaters about two and a half times as long as the diameter of the spores, with 2–3 spiral fibers.

Wet cliffs near Gaudalajara, Mexico, *Pringle* (Sept. 11 1890).

13. *Asterella Austini*, n. sp.

Gametophyte 1–2<sup>cm</sup> long, 2–3 wide, thalloid, plane, thin, green above and beneath with here and there occasional spots of purple, with narrow brownish scales and more or less copious root-hairs near the midrib beneath; ♀ branch 1<sup>cm</sup> or more high, brownish, sparingly pilose but the hairs becoming more abundant at the apex; receptacle somewhat tuberculate above with 1–3 more or less divergent involucre; inner involucre brownish or dirty white, about 8-cleft, the divisions coherent at their apices. Sporophyte a sessile yellowish capsule; spores yellow, 110–118 $\mu$  in diameter, broadly winged and distinctly reticulated; elaters about twice as long as the diameter of the spores with two irregularly coiled spirals.

Cuba, *C. Wright*. Distributed by Austin as *Fimbriaria elegans* (Hep. Bor.-Am. 136 c) which (as represented in my herbarium) forms the type of this species. The specimen of this number in the Gray Herbarium agrees with mine except that it lacks mature spores. The set in the Herbarium of Columbia College lacks this number. I should be pleased to have others who possess sets of Austin's exsiccatae compare their specimens with the above statements.

14. *Asterella Wrightii*, n. sp.

Gametophyte 1–2<sup>cm</sup> long, 2–3<sup>mm</sup> wide, thalloid, deeply



grooved, slender, light green above with crispy or deeply undulate margins, deep purple beneath with abundant narrow purple scales which often extend beyond the apex; ♀ branch purple, rather stout, 1<sup>cm</sup> or less high, pilose throughout, with usually a dense mass of tomentum beneath the involucre; receptacle somewhat tuberculate above, with 3-4 somewhat divergent involucre short, brownish or often purplish, 8-cleft, the divisions coherent at their apices. Sporophyte sessile, spores (dark yellow) and elaters much as in *A. Austini* to which it is evidently closely related.

Cuba, *C. Wright*. Distributed in Hepaticæ Cubenses Wrightianæ as *Fimbriaria tenella* to which it bears little resemblance.

There are certain data that can best be collected in the field that we much desire to add to our knowledge of the species of *Asterella*. These are the characters of the antheridia which develop at a different time from the ♀ branch; most herbarium specimens are collected when this is mature and leave the ♂ receptacles largely to be conjectured. The genus was formerly regarded as monoicous but it is certain that *A. Californica* is dioicous and possibly other species are. Another feature to be studied where growing material can be had in quantity is the development of the ♀ branch. In his studies on *A. Californica* Dr. Campbell writes me that he finds that it differs from the account of *Fimbriaria* as given by Leitgeb; instead of having one growing point and thus forming a single branch, this species has four distinct apices and thus corresponds to Leitgeb's division "Compositæ" of which *Marchantia* is the type. The Pacific coast is the peculiar home of the genus in America and it is hoped that light will be thrown on other species of this interesting genus by workers in that region.

AYTONIA appears to be the original orthography of the genus established by Forster (1776) which has been further christened *Rupinia* Linn. f. (1780), *Otione* Corda (1829), *Plagiostoma* L. et L. (1832), *Sedgwickia* Bisch. (1835), *Antrocephalus* Lehm. (1838), and *Otione* Mitten (1885).

Two species are known from our borders which represent two very distinct types of structure. In the first species named the epidermal cells form a compact palisade structure, the cells being fully twice as high as wide; the air cavities are small and the entire thallus is compact and adapted to an environ-



ment which includes a dry season. In the second species the air cavities are very extensive so that the shoot on drying becomes roughened, and the epidermal cells are isodiametric. So far as we have seen the Mexican species, they are of the first type.

15. *AYTONIA WRIGHTII* (Sulliv.) Undw. Bull. Ill. State Lab. Nat. Hist. 2: 43. 1884.

Texas, *C. Wright*. Known only from its original specimen.

16. *AYTONIA ERYTHROSPERMA* (Sulliv.) Undw. l. c. 43. 1884.

Rocky Mountains, *E. Hall*; Eagle Pass, British Columbia, *Macoun*; Almota, Washington, *Piper*; Lake Pend d'Oreille, Idaho, *Leiberg*; Montana: Sand Coulee, *Anderson*, Great Falls, *R. S. Williams*; California: Tulare co., *Coville*, Pasadena, *McClatchie*.

Four additional species are known from Mexico:

17. *Aytonia crenulata* (Gottsche), nom. nov.

*Plagiochasma crenulatum* Gottsche, De Mex. Leverm. 266. 1863. Orizaba, Mexico, *Farlow*!

18. *Aytonia elongata* (L. et G.), nom. nov.

*Plagiochasma elongatum* L. et G. Syn. Hep. 513. 1847.—Gottsche, De Mex. Leverm. 265. 1863.

19. *Aytonia intermedia* (L. et G.), nom. nov.

*Plagiochasma intermedium* L. et G. Syn. Hep. 513. 1847.—Gottsche, De Mex. Leverm. 264. 1863.

Guadalajara, Mexico, *Pringle*! Guatemala, *J. Donnell Smith*!

20. *Aytonia Mexicana* (L. et G.), nom. nov.

*Plagiochasma Mexicanum* L. et G. Syn. Hep. 519. 1847.—Gottsche, De Mex. Leverm. 267. 1863.

Since the publication of my Descriptive Catalogue, a genus entirely new to America has been discovered in British Columbia by Mr. J. Macoun. It is the genus *Clevea*, generally distributed in the northern parts of the eastern hemisphere.

21. *CLEVEA HYALINA* (Somm.) Lindb.

Under rocks, Lake Agnes, alt. 7,000<sup>ft</sup>, *Macoun*; also reported by Berggren from Greenland. The specimens distributed in Canadian Hepaticæ no. 75 belong (in my set) to *Aytonia erythrosperma*.



CONOCEPHALUM<sup>3</sup> Wiggers, Prim. Fl. Hols. 82. 1780, appears to be the oldest available name for what was called *Conocephalus* by Necker (1790), and *Fegatella* by Raddi (1818), since the earliest name, *Hepatica* Micheli (1729), is excluded by the Code. Our only species is

22. **Conocephalum conicum** (L.), nom. nov.

*Marchantia conica* L. Sp. Pl. 1138. 1753.

Widely distributed from Tennessee to California and northward.

I have specimens from Newfoundland, New Brunswick, Maine, New Hampshire, Vermont, Massachusetts, Connecticut, New York, New Jersey, Delaware, Virginia, Tennessee, Ohio, Indiana, Illinois, Wisconsin, Minnesota, Missouri, Nebraska, Idaho, California, Washington, British Columbia, Ontario and Alaska.

23. **CRYPTOMITRIUM TENERUM** (Hook.) Aust.

Central California: Palo Alto, *Campbell*; San Bernardino, *Parish*; Pasadena, *McClatchie*. Also reported from Mexico by *Gottsche*. Hitherto this has been very rare but Prof. McClatchie has recently collected it in considerable abundance.

It becomes necessary to make another change for the genus which has always been known in America under the name of *Preissia*. CYATHOPHORA S. F. Gray (1821) appears to be the oldest name, though Lindberg rejected it because of the moss genus *Cyathophorum* Pal. de Beauv (1805). It is a little singular that both Lindberg and Schiffner adopted *Chomiocarpon* Corda over *Preissia* Corda, for while both have the same date of publication the latter has priority of place. There has been fully as much difficulty with the specific name and there has consequently arisen an extensive list of synonyms. This has been aggravated by the attempt in Europe to maintain the autoicous form as a distinct species from the dioicous form. There seems to be no further reason for maintaining this distinction. If we have one species it will be known as

24. **CYATHOPHORA QUADRATA** (Scop.) Trevis Mem. R. Ist. Lomb. di Sci. Lett. III. 4: 438. 1877.

<sup>3</sup> By typographical error this was printed *Cynocephalum*, which form was adopted by Lindberg before he took up the Michelian name *Hepatica*. Schiffner (in Engler-Prantl 1<sup>st</sup>: 34. 1893), makes the singular error of citing *Conocephalus* Neck. with the date 1759. Necker's *Elementa Botanica* was printed in 1790 and this genus is numbered 1759 in the third volume (p. 344)!



*Marchantia quadrata* Scop. Fl. carn. 2: 355. 1772. [ed. 2].

*Marchantia hemisphaerica* Auct. div. non L. Sp. Pl. 1138. 1753.

*Marchantia commutata* Lindenb. Syn. Hep. Europ. 101. 1829.

Widely distributed from New Jersey to Idaho and northward to Alaska and Greenland. I have specimens from Newfoundland, New Brunswick, Maine, New Hampshire, Vermont, Massachusetts, New York, New Jersey, Michigan, Wisconsin, Minnesota, Idaho, Ontario, British Columbia and Alaska.

25. **Cyathophora Mexicana** (Steph.), nom. nov.

*Preissia Mexicana* Steph. Hedw. 22: 49. 1883.

Mexico.

26. **DUMORTIERA HIRSUTA** (Swz.) R. Bl. et N.

Easton, Pennsylvania, *Porter* (seemingly its northern limit); East Tennessee, *Ruth*, *Scoville*; North Carolina, *Sullivan*; Georgia, *Underwood*; South Carolina, *Ravenel*; Florida, *Underwood*; Alabama, *Mohr*; Missouri?, *Shepard*; Arkansas, *Coville*; Mexico, *Pringle*; Cuba, *Wright*; St. Domingo, *Eggers*; Trinidad, *Fendler*; and generally distributed throughout tropical regions.

27. **GRIMALDIA FRAGRANS** (Balb.) Corda.

*G. barbifrons* Bisch.

*G. sessilis* Sulliv.

Connecticut, *Evans*; New York, *Peck*; New Jersey, *Austin*; Pennsylvania, *Porter*; Missouri, *Weller*; Wisconsin, *Cheney*; Minnesota, *Holzinger*; Texas, *Wright*; New Mexico, *Fendler*; also reported by Austin from Illinois and Iowa. Seemingly widely distributed but rarely collected and probably local.

28. **GRIMALDIA CALIFORNICA** Gottsche.

California: Yosemite Valley, *Bolander*; Pasadena, *McClatchie*.

29. **GRIMALDIA RUPESTRIS** (Nees) Lindenb.

Mt. Albert, Gaspé co., Quebec, *Allen*; Belleville, Ontario, *Macoun*; Springfield, Ohio, *Spence*. Austin also reported it from New York, and Prof. Peck writes me that the State Herbarium at Albany has it from three localities.

The last species is often regarded as generically distinct from the other Grimaldiæ. It has formerly been placed in the genus *Duvallia* Nees (1817) but as there is an earlier *Duvallia* Haworth (1812). Schiffner has erected a new genus *Neesiella*<sup>4</sup> for its reception.

<sup>4</sup>Engler-Prantl, Die natürl. Pflanzenf. 1<sup>3</sup>: 32. 1893.



30. LUNULARIA CRUCIATA (L.) Dumort. Comm. Bot. 116. 1822.

*L. vulgaris* Auct. plur.

Always sterile in greenhouses; probably widely distributed but I have specimens only from Massachusetts, New York, and California.

There are three species of *Marchantia* now reported from our limits:

31. MARCHANTIA DISJUNCTA Sulliv.

Claiborne, Alabama, *Sullivant* (the original locality); Fayetteville, Arkansas, *Harvey*; Fort Worth, Texas, *Thomson*; also Orizaba, Mexico, *Müller*, *Stone*; Cuba, *C. Wright*; Jamaica, *Wilson*.

32. MARCHANTIA OREGONENSIS Steph. Bot. Centralb. 45: 203. 1891.—Hedwigia 32: 399. 1893.

Mt. Hood, Oregon, *Röll*. I am indebted to Herr Stephani for an original specimen of this species.

33. MARCHANTIA POLYMORPHA L.

Almost universally distributed throughout our borders as in all parts of the world. It appears to be more abundant in limestone regions but is by no means confined to them. We have specimens from Labrador, Newfoundland, N. S., Me., Mass., Ct., N. Y., Va., Tenn., Ind., Ill., Minn., Neb., Col., Ariz., Calif., Ore., Wash., Idaho, Mon., Br. Col., and Alaska.

A number of additional species are found south of our limits; so far as specimens exist in my collection I append a mark of exclamation.

34. MARCHANTIA CARTILAGINEA L. et L.

St. Vincent.

35. MARCHANTIA CHENOPODA L.

Orizaba, Mexico, *Stone*! Guatemala, *J. Donnell Smith*! Cuba, *C. Wright*! Martinique, *Husnot*! Also Porto Rico, Jamaica and Guadeloupe.

36. MARCHANTIA DOMINGENSIS L. et L.

Cuba, *C. Wright*! Also St. Domingo and Martinique.

37. MARCHANTIA INFLEXA M. et N.

St. Domingo; Martinique.

38. MARCHANTIA LINEARIS L. et L.

Cuba, *C. Wright*! Guatemala, *Watson*! Also St. Domingo, Guadeloupe, Martinique, St. Vincent, St. Christopher.



39. MARCHANTIA PAPILLATA Raddi.  
Martinique.

40. MARCHANTIA THOLOPHORA Bisch.  
Cordoba, Mexico, *Farlow!*

The transfer of the name *Asterella* to *Fimbriaria* has already been stated above. It is only worth noting that Raddi's name, originally *Rebouillia*, was amended by Nees in 1846 to its correct form *Reboulia*; the only species is

41. REBOULIA HEMISPHERICA (L.) Raddi.  
*Asterella hemisphærica* Pal. de Beauv.

Widely distributed from Massachusetts and Ohio westward to British Columbia and southward to Mexico. We have specimens from Massachusetts, New York, New Jersey, Virginia, Georgia, Ohio, Indiana, Illinois, Wisconsin, Minnesota, British Columbia, Nebraska, Missouri, Arkansas, Louisiana, Texas, New Mexico, Arizona, California, and Lower California.

In *Die natürlichen Pflanzenfamilien*, Schiffner throws doubt upon the occurrence of *Sauteria* in America. The solitary specimen of our only species of this genus (a sterile one) was carefully reviewed, as the determination of sterile material has been found to be rather uncertain. This examination reveals the undoubted thallus structure of *Sauteria*, together with the peculiar stellate stomata which are caused by the thickening of the radial walls of the cells bounding the stoma. The air cavities in the shoot are also different from any other of our genera; they are large and deep and extend in a radiating series from the midrib outward. The original specimen is, I suppose, in the Austin collection. So far as I know it has been collected but once since.

42. SAUTERIA LIMBATA Aust.  
Tulare Co., California, *Coville*.

The next genus shares with *Marchantia* the honor of being the only ones recognized in Linnaeus' *Species Plantarum*.

43. TARGIONIA HYPOPHYLLA L.

Vancouver Island, *Macoun*; California throughout, *Parish*, *McClatchie*, *Coville*, *Howe*, *Underwood*.

Two other species are found in Mexico:

44. TARGIONIA CONVOLUTA L. et G.  
Oajaca.

45. TARGIONIA MEXICANA L. et G.  
Jalapa.



The above represents all that is known of the distribution of the most conspicuous and most generally recognized forms of hepatics in North America. It will clearly be seen that there is still much to do, particularly in the west, southwest and south to determine with more definiteness the range of most of our species. Particularly is the state of Texas an excellent field for the enlargement of our knowledge concerning distribution. The fact that several species have not been recollected since Charles Wright explored that region in 1849 does not speak well for field work in that commonwealth.

*Greencastle, Indiana.*